

WHAT IS CLAIMED IS:

1. A nucleic acid probe for measuring human gene expression, comprising:

a nucleotide sequence as set forth in any one of SEQ ID NOs: 16,835 - 33,299, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

wherein said probe is a single exon probe that hybridizes under high stringency conditions to a nucleic acid molecule expressed in human cells or tissues.

2. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 4, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human brain.

3. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 5, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human heart.

4. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 6, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human liver.

5. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 7, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human fetal liver.

6. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 8, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human placenta.

7. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 9, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human lung.

8. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 10, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human bone marrow.

9. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 11, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in HeLa cells.

10. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 12, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in BT 474 cells.

11. A single exon nucleic acid probe according to claim 1, wherein:

said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 13, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in HBL 100 cells.

12. The single exon nucleic acid probe of claim 1, wherein said fragment includes at least 20 contiguous nucleotides of said SEQ ID NO: or the complement thereof.

13. The single exon nucleic acid probe of claim 1, wherein said fragment includes at least 25 contiguous nucleotides of said SEQ ID NO: or the complement thereof.

14. The single exon nucleic acid probe of claim 1, wherein said fragment includes at least 50 contiguous nucleotides of said SEQ ID NO: or the complement thereof.

15. The single exon nucleic acid probe of claim 1, wherein said probe further comprises, contiguous to a first end of said fragment, a first intronic and/or intergenic sequence that is identically contiguous to said fragment in the human genome.

16. The single exon nucleic acid probe of claim 15, wherein said probe further comprises, contiguous to a second end of said fragment, a second intronic and/or intergenic sequence that is identically contiguous to said fragment in the human genome.

17. The single exon nucleic acid probe of claim 16, wherein said probe comprises a nucleotide sequence selected from any one of SEQ ID NOs: 1 - 16,834, or the complement thereof.

18. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 4, or the complement thereof,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human brain.

19. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 5, or the complement thereof,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human heart.

20. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 6, or the complement thereof,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human liver.

21. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 7, or the complement thereof,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human fetal liver.

22. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOS: set forth in Table 8, or the complement thereof,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human placenta.

23. The single exon nucleic acid probe of claim 17, wherein said probe comprises a nucleotide sequence selected from the probe SEQ ID NOS: set forth in Table 9, or the complement thereof,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human lung.

24. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOS: set forth in Table 10, or the complement thereof,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human bone marrow.

25. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 11, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in HeLa cells.

26. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 12, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in BT 474 cells.

27. The single exon nucleic acid probe of claim 17, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 13, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in HBL 100 cells.



28. The single exon nucleic acid probe of claim 1, wherein said probe is no more than 25 kb in length.

29. The single exon nucleic acid probe of claim 1, wherein said probe is no more than 5 kb in length.

30. The single exon nucleic acid probe of claim 1, wherein said probe lacks prokaryotic and bacteriophage vector sequence.

31. The single exon nucleic acid probe of claim 1, wherein said probe lacks homopolymeric stretches of A or T.

32. A nucleic acid probe for measuring human gene expression, comprising:

a nucleotide sequence that encodes, or the complement of which encodes, at least 8 amino acids of any one of SEQ ID NOs:33,300 - 49,117,

wherein said probe is a single exon probe that hybridizes under high stringency conditions to a nucleic acid molecule expressed in human cells or tissues.

33. A spatially-addressable set of single exon nucleic acid probes for measuring human gene expression, comprising:

a plurality of single exon nucleic acid probes according to claim 1,

wherein each of said plurality of probes is separately and addressably isolatable or amplifiable from said plurality.

34. The spatially-addressable set of single exon nucleic acid probes of claim 33, wherein each of said plurality of probes is amplifiable using at least one common primer.

35. The spatially-addressable set of single exon nucleic acid probes of claim 33, wherein said set comprises between 50 - 20,000 single exon nucleic acid probes.

36. The spatially-addressable set of single exon nucleic acid probes of claim 33, wherein the average length of the single exon nucleic acid probes is between 50 bp and 750 bp.

37. The spatially-addressable set of single exon nucleic acid probes of claim 33, wherein at least 50% of said single exon nucleic acid probes lack prokaryotic and bacteriophage vector sequence.

38. The spatially-addressable set of single exon nucleic acid probes of claim 33, wherein at least 50% of said single exon nucleic acid probes lack homopolymeric stretches of A or T.

39. The spatially-addressable set of single exon nucleic acid probes of claim 33, wherein said probes are addressably disposed upon a substrate.

40. A single exon microarray for measuring human gene expression, comprising:

a spatially-addressable plurality of single exon nucleic acid probes according claim 1.

41. A single exon microarray for measuring human gene expression, comprising:

a spatially-addressable plurality of single exon nucleic acid probes according to any one of claims 2 - 32.

42. The single exon microarray of claim 40, wherein said plurality of single exon nucleic acid probes averages at least 50 bp in length.

43. The single exon microarray of claim 40, wherein said plurality of single exon nucleic acid probes averages at least 75 bp in length.

44. The single exon nucleic acid microarray of claim 40, wherein said single exon nucleic acid probes are noncovalently bound to the substrate of said microarray.

45. A method of measuring human gene expression, comprising:

contacting the microarray of claim 40 with a first plurality of detectably labeled nucleic acids, said first plurality of nucleic acids being derived from human gene transcripts; and then

measuring the label detectably bound to each probe of said microarray,

said measures of detected label providing a measure of human gene expression.

46. The method of claim 45, further comprising:

contacting said microarray with a second plurality of detectably labeled nucleic acids;

measuring the label detectably bound to each probe of said microarray; and

comparing said first and second measurements,

said comparative measures of detected label providing a measure of human gene expression.

47. The method of claim 46, wherein said first and second pluralities are distinguishably labeled and simultaneously contacted to said microarray.

48. A vector, comprising: the single exon probe of claim 1.

49. An ORF-encoded peptide, comprising: at least 8 contiguous amino acids of any one of SEQ ID NOs:33,300 - 49,117 or at least 8 contiguous amino

acids of any one of SEQ ID NOs:33,300 - 49,117 with conservative amino acid substitutions.

50. The ORF-encoded peptide of claim 49, wherein said peptide comprises at least 15 contiguous amino acids of any one of SEQ ID NOs:33,300 - 49,117 or at least 15 contiguous amino acids of any one of SEQ ID NOs:33,300 - 49,117 with conservative amino acid substitutions.

51. An isolated antibody, wherein said antibody binds specifically to a peptide according to claim 49.

52. A method of selling and/or licensing single exon probes to a customer desiring to measure gene expression, comprising:

making available for computerized query a database having a plurality of records, each record corresponding to a single exon probe according to claim 1,

wherein said database responds to a customer query by returning to the customer at least one record, or an identifier of said record, that satisfies the customer query criteria, the probes to which said records correspond being available for sale and/or licensing.

53. A method of selling and/or licensing single-exon microarrays to a customer desiring to measure gene expression, comprising:

making available for computerized query a database having a plurality of records, each record corresponding to a microarray according to claim 40,

wherein said database responds to a customer query by returning to the customer at least one record, or an identifier of said record, that satisfies the customer query criteria, the microarrays to which said records correspond being available for sale and/or licensing.

54. A method of providing human gene expression data by subscription, comprising:

making available for computerized query a database having a plurality of records, each record including data on the expression of a single exon probe according to claim 1,

wherein said database responds to a query by a customer having a subscription, but not to a query by a customer lacking such subscription, by returning at least one record, or identifier of said at least one record, that satisfies the customer query criteria.

55. A computer readable storage medium storing instructions that, when executed by a computer, causes the computer to perform the method of any one of claims 52 to 55.

56. A computer system, comprising a processor programmed to perform the method of any one of claims 52 to 55.

57. A computer readable storage medium containing a database having a plurality of records, each record including data on the expression of a single exon probe according to claim 1.

58. A method of financing a company that makes and sells single exon probes, single exon microarrays, or expression data obtained therefrom, comprising:

making known the availability for distribution, sale, and/or license of single exon probes, single exon microarrays, and/or data therefrom; and then

selling stock in said company.